IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **Xingzhou JIN et al.** Art Unit: **1796**

Application Number: **10/501,452** Examiner: **Ana WOODWARD**

Filed: **November 4, 2004** Confirmation Number: **9405**

For: **SOLVENT-SOLUBLE BLOCK COPOLYMIDE COMPOSITION AND PROCESS FOR PRODUCING THE SAME**

Attorney Docket Number: **042586**
Customer Number: **38834**

DECLARATION UNDER 37 C.F.R. §1.132

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Xingzhou JIN, DO hereby declare and state:

I graduated from Chiba University with a Master's degree in Chemistry in March of 1999;

I have been employed by PI R&D CO. LTD. since April of 1999,

I am a co-inventor of the invention described and claimed in the above-identified application;

I have read and understand the instant application and the Office Actions to date, including the references cited therein;

Since 2001, I have worked in the development of the positive type photosensitive polyimide. At the outset, I used as the diamine compound HOAB (3,3'-hydroxy-4,4'-diamino biphenyl) made by Wakayama Seika Kogyo Co., LTD., as set forth at column 17, lines 51-52 of U.S. Patent 6,890,626.

After that, I looked for commercially available diamines having a hydroxyl group during the development of the positive type of solvent-soluble photosensitive polyimide. Consequently, I have found that besides the aforesaid HOAB, there were 2,2'-Bis(3-amino-4-hydroxyphenyl)-hexafluoropropane made by Central Glass Co., LTD., and 3,3-diamino-4,4'-dihydroxydiphenylsulfone made by Konishi Chemical, Ind. Co., LTD.

Both of the makers have called them Bis-AP-AF and BS-DA for short, respectively. These abbreviations lack consistency, although the substances referred to by them were similar in chemical structure to the HOAB used from the beginning.

Therefore, the in-house development team coined abbreviations for those compounds to make a difference with the chemical structure of the HOAB.

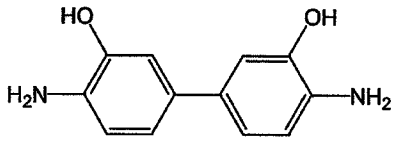
That is, 2,2'-Bis(3-amino-4-hydroxyphenyl)-hexafluoropropane was abbreviated as HOCF3AB to make it clear that it was HOAB having a characteristic chemical structure.

Likewise, 3,3'-diamino-4,4'-dihydroxydiphenylsulfone was abbreviated as SO2-HOAB to make it clear that it had SO2.

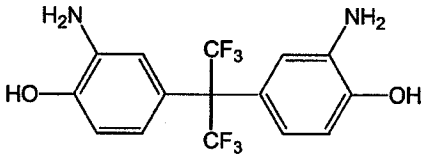
The foregoing is why there is a difference between Applicants' abbreviations and those used by the makers.

In the specification of the instant application, the abbreviation HOCF3AB is for (2,2'-Bis(3-amino-4-hydroxy-phenyl)-hexafluoropropane. However, there was a clerical error. 2,2'-Bis[4-(4-aminophenyl-phenoxy)phenyl]-hexafluoropropane was defined as related to HOCF3AB. However, it is clear that 2,2'-Bis[4-(4-aminophenyl-phenoxy)phenyl]-hexafluoropropane is hydroxyl free. The term "HO" clearly refers to

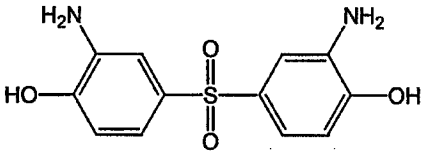
hydroxyl groups. Thus, it is obvious that HOCF3AB is not 2,2'-Bis[4-(4-aminophenyl-phenoxy)phenyl]-hexafluoropropane. See the chemical names and structures below. See also the chemical compounds shown below and as shown on pages 30-31 of Fluoro Chemicals 11th Edition published by Central Glass Co., LTD (attached hereto). Also attached hereto are chemical structure from Specialty Chemicals of Wakayama Seika and "Products List" from Konishi Chemical Ind. Co., Ltd.



Chemical Name: 3,3'-hydroxy-4,4'-diamino biphenyl
Maker's Abbreviation: HOAB
In-house Abbreviation: HOAB



Chemical Name: 2,2'-Bis(3-amino-4-hydroxyphenyl)-hexafluoropropane
Maker's Abbreviation: Bis-AP-AF
In-house Abbreviation: HOCF3AB



Chemical Name: 3,3'diamino-4,4'-dihydroxydiphenylsulfone
Maker's Abbreviation: BS-DA
In-house Abbreviation: SO2-HOAB

I declare further that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

XingZhou Ji

Name: Xingzhou JIN

8.5.2008

Date: August _____, 2008

Fluoro Chemicals

11th Edition

CENTRAL GLASS CO., LTD.

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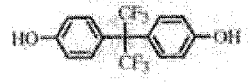
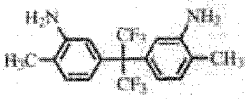
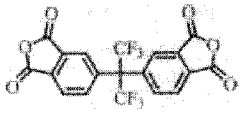
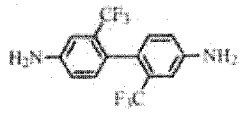
4. Polymer Products 56 ~ 59

4.1 Celrol Soft, Celrol Core

4.2 Other Polymer Products

2.3 Monomers

2.3.1 Aromatics (1)

No.	Products	Structural Formula
205	2, 2-Bis (4-hydroxyphenyl)-hexafluoropropane [BIS-AF]	
821	2, 2-Bis [4- (4-aminophenoxy) phenyl]-hexafluoropropane [BIS-AF-A]	
822	2, 2-Bis (3-amino-4-hydroxyphenyl)-hexafluoropropane [BIS-AP-AF]	
828	2, 2-Bis (3-amino-4-methylphenyl)-hexafluoropropane [BIS-AT-AF]	
827	2, 2-Bis (4-aminophenyl)-hexafluoropropane [BIS-A-AF]	
829	2, 2-Bis (3, 4-anhydrodicarboxyphenyl)-hexafluoropropane [6FDA]	
830	2, 2'-Bis (trifluoromethyl)benzidine [ABL-21]	

erroed HOCF3AB

correct HOCF3AB

Properties	Remarks
MW : 336 BP : 400 °C MP : 162 °C	CAS No. : 1478-61-1 ENCS : 4-1335 TSCA : Registered EINECS : 2160367
MW : 518 MP : 163 °C	CAS No. : 69563-88-8 TSCA : Registered
MW : 366 MP : 240 °C	CAS No. : 83558-87-6 TSCA : Registered
MW : 362 MP : 105 – 106 °C	CAS No. : 116325-74-7
MW : 334 MP : 196 °C	CAS No. : 1095-78-9 TSCA : Registered
MW : 444 MP : 248 °C	CAS No. : 1107-00-2 EINECS : 2141700 TSCA : Registered
MW : 320 MP : 183 – 184 °C	CAS No. : 341-58-2

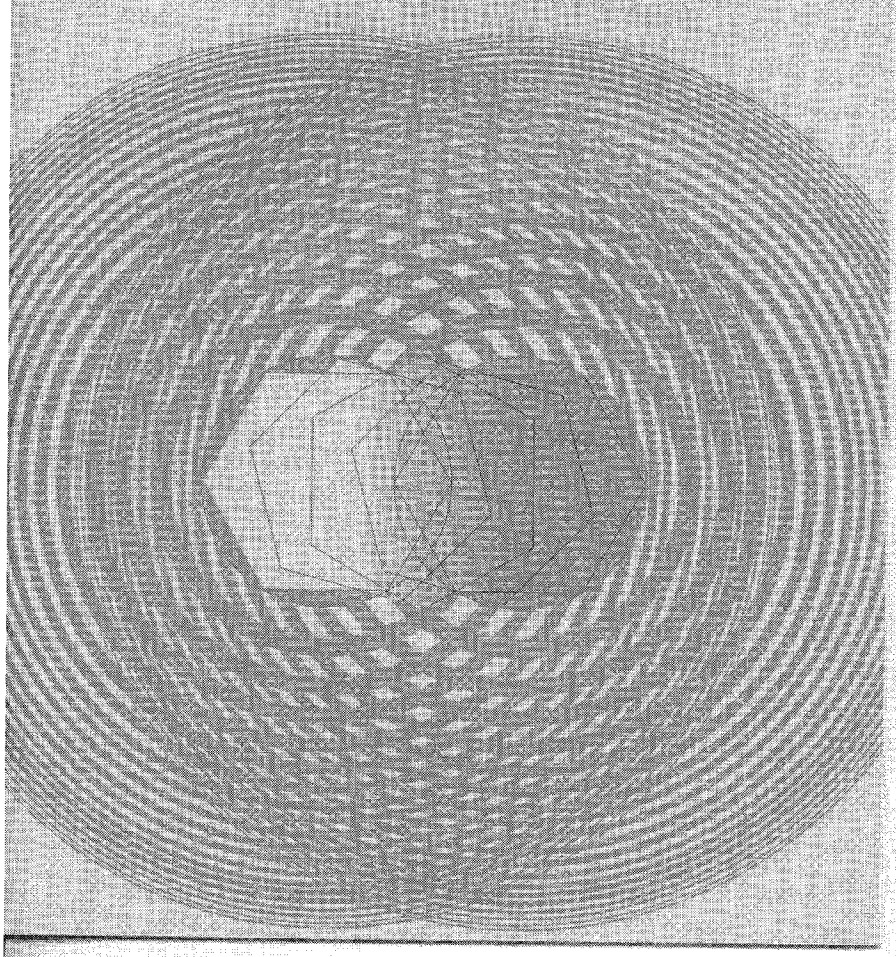
CENTRAL GLASS CO., LTD. **Fine Chemicals Sales Department (JAPAN)**
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Fax +81-3-3581-1361
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Internet http://www.cgco.co.jp/index.html

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Alachua, FL 32616-0789
Phone +1-386-462-9588
Fax +1-386-462-9225
Email cgi.fcd@cglintl.com

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Whitefield Road, Bredbury
Stockport, UK
Phone +44-161-406-6688
Fax +44-161-406-6699
Email cgeuk@fluorogent.com

(d)

SPECIALTY CHEMICALS OF WAKAYAMA SEIKA



We, WAKAYAMA SEIKA KOGYO CO., LTD., hope this pamphlet provides you with some helpful information and opportunity to learn more about our products.

Now we are looking forward to having the pleasure of your valuable inquiries. We are entirely at your service.

Should there be any questions, comments and suggestions on our products, please feel free to contact WAKAYAMA SEIKA KOGYO CO., LTD. directly or through SEIKA & COMPANY, LTD.

Manufacturer:

WAKAYAMA SEIKA KOGYO CO.,LTD.

1-82, 1-chome, Kozaika, Wakayama, 641-0007 Japan.
Tel. (073) 423-3247
Fax: (073) 426-5378

Sales Division:

SEIKA & COMPANY, LTD.

8, Minamimigiwa-cho, Wakayama, 640-8232 Japan.
Tel: (073) 433-2191
Fax: (073) 428-3977

SEIKA GROUP URL
http://www.waseika.com

Apr. 2001.800 Printed in Japan

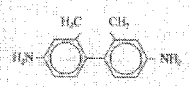
Products	Page
Dichlodine-H (DCB)	1
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Main products listed on pages 1 to 13 are now commercially available.

New products listed on pages 15 to 17 are semicommercially available.
(Some are still developmental.)

m-TB-HG

2,2'- Dimethyl - 4,4'- diamino biphenyl



MW. 212.3

MF	$C_{14}H_{16}N_2$
MP	86℃ min.
Assay	99.0% min. (DV)
Pinkish white powder	
JECS	No. 4-803
CAS	No. 84-67-3

TFMB

2,2' - Bis (trifluoromethyl) - 4,4' - diamino biphenyl

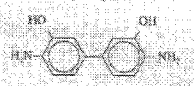


MW. 320.2

MF	$C_{14}H_8F_6N_2$
MP	182℃ min.
Assay	99.0% min. (DV)
Pinkish white powder	
CAS	No. 341-58-2

HAB

3,3' - Dihydroxy - 4,4' - diamino biphenyl
4,4' - Diamino - 3,3' - biphenyldiol



MW. 216.2

MF	$C_{12}H_{12}N_2O_2$
Assay	98.5% min. (DV)
Brownish grey powder	
CAS	No. 2373-98-0

based HOAB

FDA

9,9-Bis (4-aminophenyl) fluorene

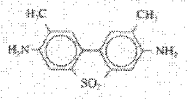


MW. 348.5

MF	$C_{25}H_{20}N_2$
MP	233℃ min.
Assay	99% min. (DV)
Light grey powder	
JECS	No. 4-1619
CAS	No. 15499-84-0

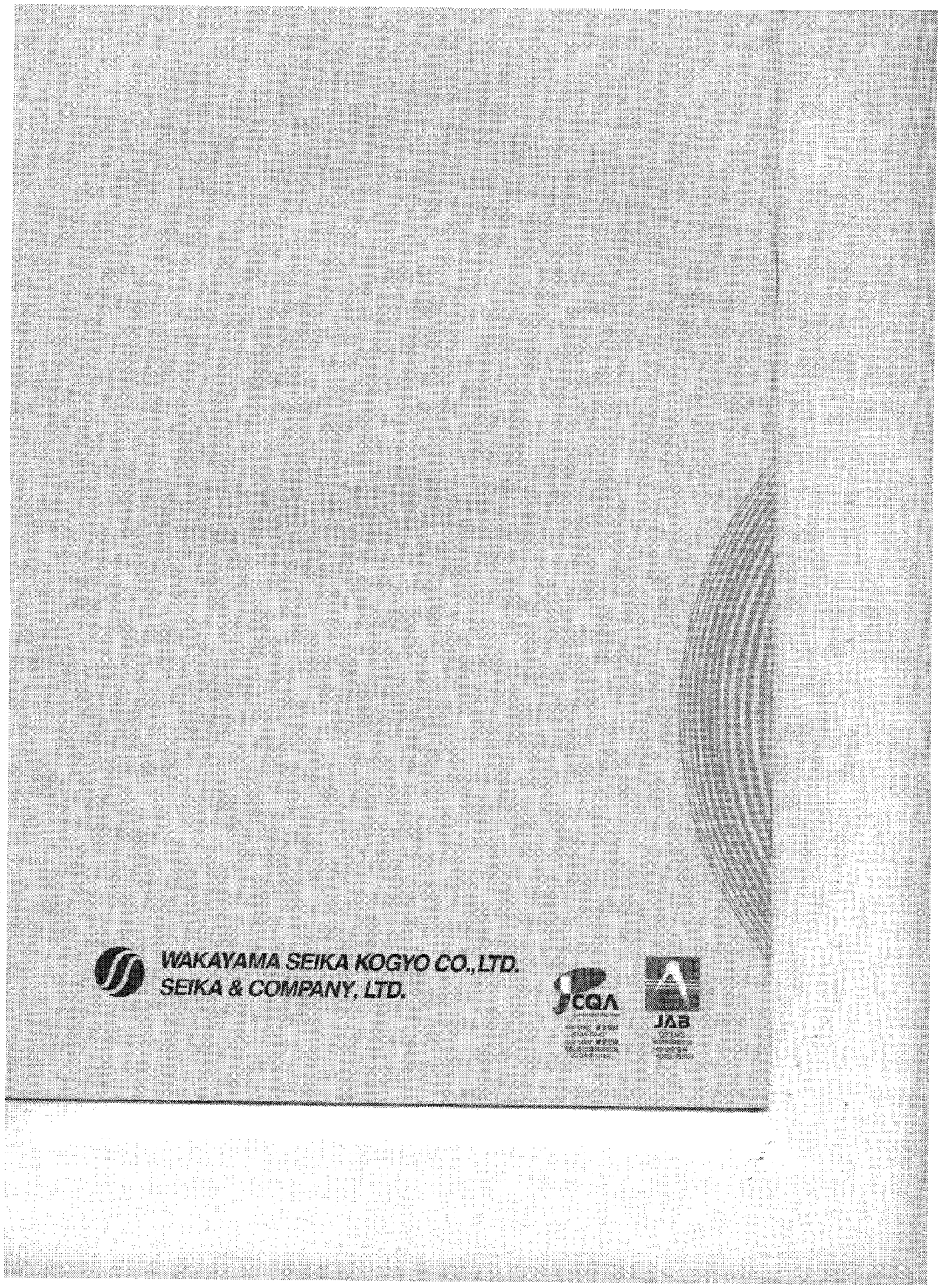
TSN

o-Tolidine sulfone



MW. 274.3

MF	$C_{14}H_{14}N_2O_2S$
MP	360℃ decomp.
Assay	99% min. (HPLC)
Greenish yellow powder	
JECS	No. 5-6095
CAS	No. 71226-58-9


WAKAYAMA SEIKA KOGYO CO.,LTD.
SEIKA & COMPANY, LTD.
JCQA
JAB

(e)

PRODUCTS LIST

KONISHI CHEMICAL IND. CO., LTD.






86-93　　No.0128 ISO9002　　R002
No.E449 ISO14001

All our products are produced in conformance with quality system standard ISO 9000.
Our goal is to ensure customer satisfaction and reliability through quality management.

私達の全ての製品はISO9000により認証された品質システムで生産されています。
私達の目標は、品質管理を通じてお客様の満足と信頼を高めることです。

We have been certified ISO 14001(Environmental Management System).
We are endeavoring to promote environmental protection by
reducing environmental burdens and economizing the use of resources and energy.

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環境負荷の低減、省資源、省エネルギーなど、
環境保全活動のスパイラルアップに努めております。

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Laboratory Products

Bisphenol S Derivatives

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L-49	CIM-S	2-(2-Chlorophenyl)-4,5-diphenylimidazole sulfonic acid	33

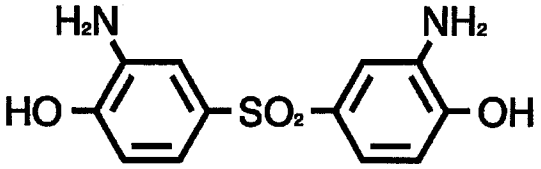
Commercial Products

NO. L-19

Abbreviation **BS-DA**

Name **3,3'-Diamino-4,4'-dihydroxy diphenyl sulfone**

Formula



M.W. 280.3

$C_{12}H_{12}N_2O_4S$

ENCS

Registry NO. —

CAS

Registry NO. 7545-50-8

Uses

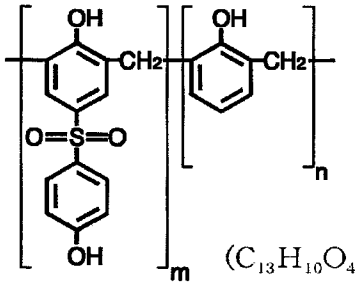
Intermediate for dyestuff
Intermediate for epoxy resin

NO. L-20

Abbreviation **BS-PR**

Name **Bisphenol-S/Phenol resin**

Formula



$(C_{13}H_{10}O_4S)_m\,(C_7H_6O)_n$

ENCS

Registry NO. —

CAS

Registry NO. 77810-18-5

Uses

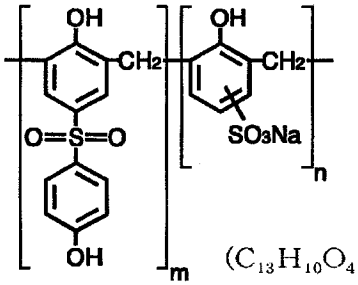
Waterproof and oilproof treatment for assistant agent

NO. L-21

Abbreviation **BS-PSR**

Name **Bisphenol-S/Phenolsulfonic acid resin**

Formula



$(C_{13}H_{10}O_4S)_m\,(C_7H_5NaO_4S)_n$

ENCS

Registry NO. 9-2533

CAS

Registry NO. 71832-81-0

Uses

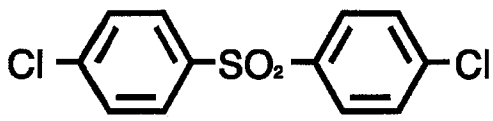
Nylon fixing agent
Paper fixing agent
Cationic substance binder for fiber (polyester,cellulose)

NO. L-22

Abbreviation **DCS**

Name **4,4'-Dichloro diphenyl sulfone**

Formula



M.W. 287.2

$C_{12}H_8Cl_2O_2S$

ENCS

Registry NO. 3-2160

CAS

Registry NO. 80-07-9

Uses

Intermediate for polyethersulfone resin
Intermediate for organic synthesis (pharmaceuticals, dyestuff, curing agent etc.)



KONISHI CHEMICAL IND.CO.,LTD.

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'02.10.1000